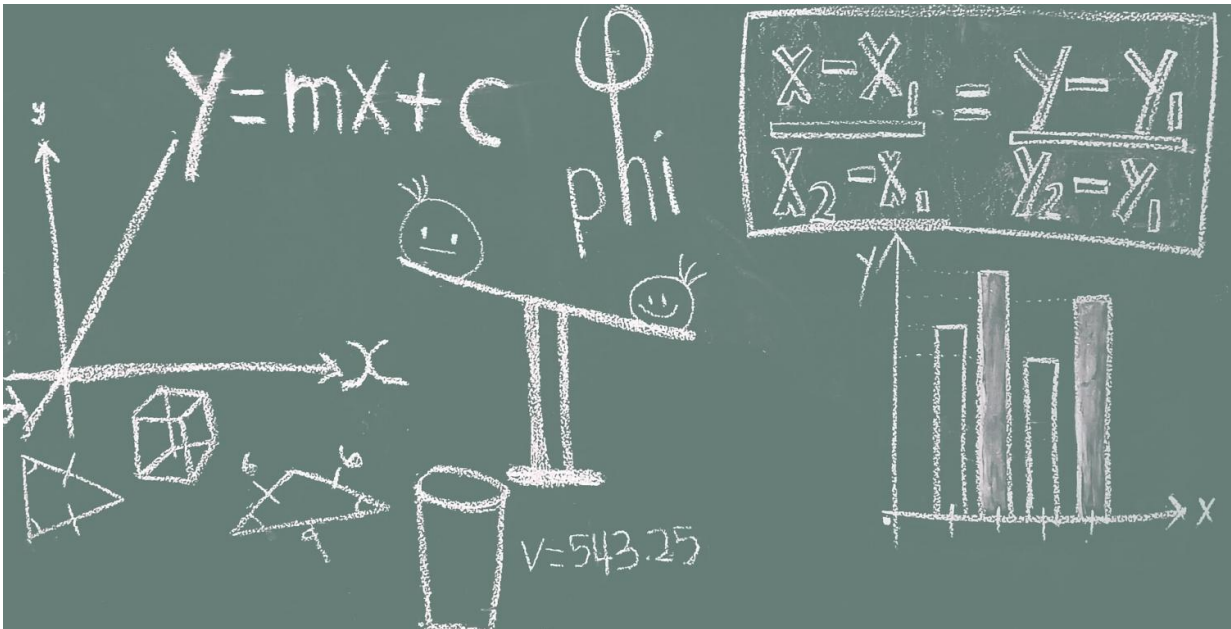


A student's experience with math is affected by the composition of the group they are in

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Weak students in high-performing math classes, especially boys, feel more shame compared to students in low-performing math classes. Stronger students, in turn, feel more bored and enjoy mathematics less in high-performing math classes, according to a new study.

Researchers at Åbo Akademi University, the University of Helsinki and the University of Turku have investigated whether the so-called big-fish-

little-pond effect (BFLPE) can explain the relationship between feelings and mathematics and students' gender. BFLPE is based on students comparing themselves against the average ability of a group. Thus, if students have better-than-average ability, their academic self-image improves, and likewise, it deteriorates if students perceive themselves to be at a level of [knowledge](#) below the group average.

This is the first study to show that BFLPE affects feelings of pride and shame to a greater extent among students with weaker knowledge of mathematics than among students with strong math skills. The study is also the first to show that BFLPE affects feelings of pleasure and boredom more among students with a strong knowledge of mathematics. The study involved 1,322 Finnish students who were 14–15 years old, a total of 77 groups.

"We found that in groups where many students are strong in mathematics, the effect on pride related to one's own knowledge is often negative. This effect was particularly prominent among students with weak knowledge of mathematics. An interesting result was that boys experienced more shame in high-performance mathematics classes while girls did not," says Johan Korhonen, assistant professor of educational psychology at Åbo Akademi University.

This may have to do with mathematics being traditionally perceived as a male subject. According to the researchers, the social comparison between students does not necessarily explain why especially high-performing students experience boredom in the classroom—rather, this may have to do with pedagogical methods and expectations on students.

"As a way to reduce BFLPE, strategies could be developed for how to handle performance-related feelings in the classroom. For example, teachers could actively work with individualized and meaningful feedback, and refrain from stereotyping mathematics as a male subject.

More encouragement for low-performing students in groups where there are high-performing students, combined with setting individual goals for everyone, could also help reduce the impact," says Korhonen.

The study "Big-fish-little-pond effect on achievement emotions in relation to [mathematics](#) performance and gender" has been published in the *International Journal of Educational Research*.

More information: Marja Eliisa Holm et al. Big-fish-little-pond effect on achievement emotions in relation to mathematics performance and gender, *International Journal of Educational Research* (2020). [DOI: 10.1016/j.ijer.2020.101692](#)

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